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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,856	03/29/2004	Ganjiang Feng	839-1055	9113

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EXAMINER

KOEHLER, ROBERT R

ART UNIT PAPER NUMBER

1775

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/810,856

Applicant(s)

FENG ET AL.

Examiner

Robert R. Koehler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

RRK.
6-12-05

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 05032004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 3, the subject matter "chromium is present in an amount of 3-40 wt%" cannot be found in the specification. See paragraphs [0016], [0017], and [0018] (pages 5 to 6).

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 5, the subject matter "aluminum is present in an amount of 3-30 wt %" cannot be found in the specification. See paragraphs [0016], [0017], and [0018] (pages 5 to 6).

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 7, the subject matter "yttrium is present in an amount of 0.1-8 wt%" cannot be found in the specification. See paragraphs [0016], [0017], and [0018] (pages 5 to 6).

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 9, the subject matter "silicon is present in an amount of 0.3-5.0 wt%" cannot be found in the specification. See paragraphs [0010] (page 4) and [0015] (page 5).

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 13, the subject matter "nickel is present in an amount of 15-45

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wt%" cannot be found in the specification. See paragraphs [0016], [0017], and [0018] (pages 5 to 6).

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 14, the subject matter "nickel is present in an amount of 20-40 wt%" cannot be found in the specification. See paragraphs [0016], [0017], and [0018] (pages 5 to 6).

7. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 16, the subject matter "silicon is present in an amount of 0.5-5 wt%" cannot be found in the specification. See paragraphs [0010] (page 4) and [0015] (page 5).

Claim Objections

1. Claim 16 is objected to because of the following informalities: In claim 16, the "gas turbine component" should be dependent from claim 15 (not method claim 14). Appropriate correction is required.

2. Claim 17 is objected to because of the following informalities: In claim 17, the "gas turbine component" should be dependent from claim 15 (not method claim 14). Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Evaluations of the level of ordinary skill in the art requires consideration of such factors as various prior art approaches, types of problems encountered in the art, rapidity with which innovations are made, sophistication of technology involved, educational background of those actively working in the field, commercial success, and failure of others.

The "person having ordinary skill" in this art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The evidence of record including the references and/or admissions are considered to reasonably reflect this level of skill.

Claims 1 to 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,585,481 (Gupta, et al.).

Gupta, et al. teaches improved coating compositions for the protection of nickel-base or cobalt-base superalloys at elevated temperatures. The MCrAlY-base coating compositions taught by Gupta, et al. contain preferred amounts of silicon, hafnium, and cobalt with elemental ranges that overlap applicants' claimed silicon and cobalt elemental range limits. Although the applicants do not refer to the usage of hafnium in the claimed MCrAlY-base coating compositions, all of applicants' claims utilize broad claim language which permits the inclusion of other suitable alloying elements in the MCrAlY-base coating compositions. The overlay coating compositions taught by Gupta, et al. possess excellent resistance to hot corrosion and

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have extended coating life under conditions of cyclic oxidation. See lines 54 to 68 in column 1, lines 8 to 50 in column 2, and lines 17 to 22 in column 4. Also, see Figure 1 for the long-term thermal/oxidation properties of MCrAlY-base overlay coatings which contain Si, Hf, and Co. Gupta, et al. differs from the claims in that Gupta, et al. does not specify the usage of a ceramic layer bonded to a MCrAlY-base overlay coating.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the appropriate amounts of silicon, hafnium, and cobalt in MCrAlY-base coating compositions which offer the best oxidation resistance and high-temperature performance because Gupta, et al. provides sufficient information about the long-term elevated temperature/oxidation stability of MCrAlY-base overlay coatings containing silicon, hafnium, and cobalt. A person skilled in the art of overlay (or bond) coatings for superalloy substrates would have been motivated to rely on Gupta, et al. because a result-effective variable (such as the long-term elevated temperature/oxidation stability of MCrAlY-base overlay coatings containing Si, Hf, and Co) *can be optimized* by a skilled person in order to achieve a recognized result (such as extended overlay coating life; lines 17 to 22 in column 4 of Gupta, et al.). Also, the Examiner believes that a skilled person would readily appreciate that an overlay (or bond) coating that possesses an extended coating life in accordance with the teachings of Gupta, et al. would definitely serve as a suitable substrate for another thermal coating such as a ceramic coating. See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Robert Koehler whose telephone number is (571) 272-1536.

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The Examiner can normally be reached on Tuesday to Friday from 9:30 AM to 7:00 PM. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on **(571) 272-1535**. The fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).



ROBERT R. KOEHLER
PRIMARY EXAMINER

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June 12, 2005